

REPORT
OF A
SURVEY OF THE RIVER THAMES,
BETWEEN
READING AND ISLEWORTH,
AND OF
SEVERAL LINES OF CANALS
PROJECTED TO BE MADE
BETWEEN THOSE PLACES:
WITH
OBSERVATIONS ON THEIR COMPARATIVE ELIGIBILITY.

By JOHN RENNIE,
CIVIL ENGINEER.

PRINTED JULY 30, 1794.

REPORT

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SURVEY OF THE RIVER THAMES

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ORDERED BY THE COMMISSIONERS OF THE RIVER THAMES

BY JOHN KENNEDY

CHIEF ENGINEER

PRINTED BY J. B. L. 1854

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TO THE
COMMISSIONERS
OF THE
RIVERS THAMES and ISIS.

GENTLEMEN,

BEING appointed, at a Meeting of the Com-
missioners of the Thames Navigation, held at the
Crown and Anchor Tavern in the Strand, on the
24th of March last, to take a survey of the river
Thames between Reading and Isleworth, and to
report my opinion on the best method of improving
the same, whether by side cuts, or by any other
method that should appear to me preferable, taking
into consideration the various advantages enjoyed
by those places bordering on the river, and hav-
ing regard to certainty, security, and dispatch of
business, in such alterations :

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Having these views before me, I set out in the month of May last on an examination of the country, in order that I might get such surveys made on the lands before the corn came forward, as would enable me to judge of the most proper line for a separate canal, in case such should be thought preferable to improving the river.

The lines marked out by Mr. Brindley naturally occurred, as the first that required examination; and these I have particularly viewed. I have also surveyed several others, namely, one to commence at Sunning, and to continue from thence on a level to Paley-street; it then descends, by a regular fall, through Stroud Green, Foxley Green, Surly Hall, and Clewer Mead, to Windsor, where it joins the river Thames, passing under Windsor-bridge, and down the King's engine-stream to Black-pots; it then departs from the river, and running on a level by Horton Green, and West Bedfont to Hounslow Heath, and descends by Twickenham to the Rails'-head at Isleworth, where it again joins the river Thames. — This line, except from Lawrence Waltham to Paley-street, is perhaps as easy a line, in point of ground, as most in this kingdom: the deep cutting near Paley-street is of considerable extent; but as its utmost depth does not exceed twenty feet, it need not be considered as any serious obstacle

obstacle to the execution of this line, if in other respects it should be approved of.

I have examined another line from Paley-street to Windsor, which will pass nearly along the division of Windsor Forest, and in general may be made, I think, less objectionable, in point of land, than the other; but this line was not observed until the corn had advanced so far as to render the making of a survey almost impracticable: I have, however, done so much as to satisfy myself of its eligibility.

Another line may pass from Sunning to Paley-street as before, and then by Maidenhead to Boulter's Lock, where it may join the Thames, and afterwards go by the proposed London canal to Isleworth. This line will be more difficult than the other, as there is, in addition to the former, a piece of expensive cutting near the Sun inn, Maidenhead; but should Mr. Vansittart be pleased to permit its passing near his house, the former difficulty will be done away, and in other respects the line will be easy in point of execution.

In both these lines I have preserved the level of Sunning, judging that the main object of the canal was to open an easy communication with Reading and the Thames above. But should the

level be taken from Blake's Lock under Reading, the deep cutting at Paley-street will be greatly lessened, and of consequence the expence; and as the Kennet would afford sufficient water for the lockage both ways, the time lost by each barge having three feet higher to rise and fall, will not be a matter worth consideration.

A third line may be taken from Hog-Hole, near Eaton, along Datchet Common, Deeplake Common, Staines Moor, Laylham Common, Ashford Common, Sunbury Common, Feltham Hill, Hanworth Common, and so on to the oil-mill at Twickenham, where it may join the former line, and from thence to the Rails'-head at Isleworth.

These being the different lines of canal surveyed by me, I shall endeavour to compare them with those surveyed by Mr. Brindley.

The shortest, and perhaps the best line of communication between Isleworth and Reading, leaving the other towns and places in this district of country out of the question, is the original Isleworth, Monkey-Island and Sunning scheme. The country is extremely favourable; and the neighbouring towns and villages may be accommodated with side branches, which in fact will consolidate the whole

whole trade of the country, for some distance, on each side, into one trunk or centre. From either of these two lines a branch may be made to join the Thames nearly opposite the mouth of the river Wey, which will enable the trade of that navigation to make such use of the proposed canal as they may find it for their interest to do.

Having the main line of a canal to pass through the principal towns in its tract, if such could be easily accomplished, is an object of some consequence ; but this is impracticable here, unless the line was made very circuitous, and perhaps not even then. I found, however, Windsor might be brought into the tract without any material deviation from the general plan, and with this view the line through Windsor was laid down. The distance between Isleworth and Reading is full as short by this line as by Monkey Island. Excepting the difficulty of passing Windsor bridge, it is in other respects as eligible : this, however, should weigh something in the scale ; but I trust the navigation of the Thames, under Windsor bridge, may be so improved, as to render the objection of little weight.

The line from Isleworth, by Boulter's Lock, to Reading, unfortunately misses Windsor ; but it accommodates Maidenhead, and by joining the Thames

above Boulter's Lock, affords a great accommodation to the towns of Marlow and Henley with the adjacent country.

By this line, the navigation to Reading will be very circuitous; and whether Reading, with the country above, and the trade that must naturally arise not only from the canals now finished and joined to the Thames, but also from those canals in execution, and others that are projected to join it, should suffer the inconvenience of this circuitous line for the accommodation of Marlow and Henley, (with the country adjacent) is a question which mercantile men, and those acquainted with the country, can better decide than me. All I can say on this head is, that the line is practicable, and by no means difficult in execution.

In the two lines proposed to communicate with the Thames at Windsor, the first, namely that through West Bedfont, was marked out by myself as the straightest, and apparently the most suitable in point of ground; but learning from Mr. Marchant, that this line was likely to meet with much opposition from the land-owners, I was induced to try a lower line, keeping more on the commons, which Mr. Marchant with great industry had chalked out. This line, in point of common, certainly possesses the superiority in a
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very eminent degree, but unfortunately the ground in Staines Moor lies low, and will cause either a considerable piece of embanking, along those low grounds, or a heavy piece of digging near Twickenham oil mill, as will appear by the sections annexed to this report.

But whether, all circumstances taken into consideration, it may not be a more eligible line in point of accommodation to the land owners than the other, is a question which, at present, I am unable to decide.

The time allowed me for the very important and extensive enquiries, you have intrusted to my care, have been far short of what is requisite to do the business effectually, and the more especially at this season of the year, when the fields are wholly covered with corn; and therefore, I hope, the Commissioners, and the Public in general, will make ample allowance in the reading of this report.

Having generally stated the outlines of my surveys, I shall next proceed to an examination of the River itself:—

The long drought, which preceded my observations on the river, was so far a favourable cir-

cumstance as it shewed the water rather in a lower state than is usual at this season of the year; but the uncommon quantity of weeds, which I found in the river, in a great measure counteracted the advantages arising from the deficiency of water; for the weeds confine, or bind, up the water, as it were, on each side of the barge tract, like so many jetties, the channel itself being kept open by the rubbing of the barges against the bottom of the river, which greatly increases its depth, and thereby assists the navigation; indeed, from what I was told by bargemen, ferrymen, and others, these weeds act to a much greater degree than a stranger could conceive—I have, therefore, been so far unfortunate as not to see the river in its worst state; and must rely on the information of others.

In order to give my opinion more clearly, on a method of improving the navigation, I shall divide the river into two districts: namely, one from Reading to Boulter's Lock, and the other from Boulter's Lock to Illeworth:—the former being now constructed with poundlocks, and dams, the other having none.

But before I enter on the main subject, I must beg leave to make some observations on the mills, and fisheries, as they now stand. For while there
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is no absolute *restraint* on the millers and proprietors of fisheries, there is no remedy that can with certainty be proposed to obviate the impediments in the navigation. In some situations the miller is stanch and lock-keeper, in others they are in separate hands; but in either case the water is made subservient to the mills and fisheries, without much attention to the navigation, and when a barge is going from Boulter's Lock upwards, in short water time, she is continually obliged to have a man before to cause the lock-keeper to send down a flash of water to carry his barge over the shoals, and should the pens be very low, which is often the case in dry seasons, they must draw three or four pounds together to furnish them with a sufficiency;—in the same manner if the miller works down his head, when a barge is coming up, she must wait till he shuts down and pens a new one.—Thus the navigation becomes dependent on the mills and fisheries. The proprietors of fisheries, in most cases, have an interest distinct from the navigation;—no fishing station, or bucks, as they are called, can be of much value unless there is a pen of some inches at the stop, which they say is necessary to bring the fish into the bucks; whereas the interest of the navigation is to have the water as still and languid as possible. To obtain the former, the channel of the river is encumbered with piles, willows,

willows, &c. which are generally inconvenient, and sometimes dangerous to the barges.

The *first* great object that should occupy the Commissioners' attention is, to confine the millers to a specific depth of working, i. e. to prevent them from drawing down the water in the ponds more than a certain depth. I should apprehend in such a river as the Thames, six inches would be amply sufficient, at least, I am sure it is not their interest to work lower.

Secondly, All the fisheries should be purchased or rendered subservient to the navigation, and those that obstruct or otherwise impede the progress of the barges should be removed,

Thirdly, All the old stanch locks should be purchased, and proper gauge or pen wiers substituted in their place, as at Temple Mills.

Fourthly, The pond or lock-keeper should be the servant of the Commissioners, and his whole time and attention should be devoted to the navigation, and as he would have no interest separate therefrom, the business would be better attended; besides attending the lock he might look after the gates, fences, &c. &c. in his pen; and there are many works of an inferior kind which might be executed

cuted under his direction, and which would greatly improve the navigation, without incurring much expence. Should the millers be restrained, as above recommended, and the fisheries and stanches become the property of the Commissioners, the water might then be kept up to a certainty within six inches of a full pen, and if a sufficient extra depth was procured in the reaches, or pens, to allow the mills this liberty, the barges might work on the river at all times, independent of flashes so universal on the Thames, and so detrimental to all good navigation; I say, could this be obtained, it would be a most desirable improvement indeed.

I shall now consider how a sufficient depth of water can be procured for vessels drawing three feet ten inches, and allowing the millers to work down their heatts, or pens, six inches: to answer both purposes, a depth of water, at least, four feet eight inches, will be necessary.

Beginning near Reading there is a very bad and inconvenient stanch lock on the Kennet, near the leather mill, called Blake's Lock, this should be removed, and a proper pound lock and gauge weir put in its place.

The water from thence to the junction of the Kennet with the Thames, except in one place,
where

where there is only three feet nine inches of water is good; this shoal should be ballasted to the proper depth.

There is another shoal at the junction of the rivers Thames and Kennet, where was only four feet three inches of water; this must also be ballasted out, and the entrance of the river should be rounded away so as to admit the water in time of floods to enter from the Kennet with less rapidity, and consequently prevent it from throwing up a sand bank in this place.

From the Kennet's mouth to Sunning Lock the water is sufficiently deep; but at Airley Point there is a very inconvenient turn in the river, opposite Breache's fishing bucks; this point should be pared off, the bucks removed, and the ayts ballasted away, to make sufficient room for the barges to turn round the point. This work was ordered to be done, and was actually in execution when I was on my survey.

At Sunning there is a tolerably good gauge wier for the floods, the water passed over it some inches deep.

The lock and stanch are under the management of the miller at Sunning Mill; the water stood
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four feet six inches deep on the upper fill, and two feet eleven inches on the lower fill of the lock, and was then five inches under the gauge mark, at Cotterell's Lock below.

The soundings shewed from three feet six inches to five feet of water in the Tail-cut, and does not much improve till below the ferry; I was told the barges were often stopped in this short distance. The lower fill of the lock should be sunk eighteen or twenty inches, and the bottom of the reach as well as the channel from the stanch should be ballasted to a proper depth in such places as may require it; namely about two hundred and twenty yards in length at the tail-cut of the lock, twenty-five yards at Sunning Bridge, and three hundred and thirty in two places, near the Roller above the ferry; a part of the shore on the Oxford side should be cut away to ease the entrance from the lock to the bridge. A part of the ayt below the bridge should be pared off; the Berks shore should be lined with a strong piece of camshot to contract the width of the river, and force it more to the Oxford side. By this plan the channel will be considerably straightened, and the river being contracted will enable it to maintain the depth of water required.

I would also advise the ferry to be done away, the towing path to be continued along the ayt, and a horse bridge to be made over the tail water of Sunning Mill. The towing horses may then cross the river at Sunning Bridge, instead of being ferried over below.

From Sunning Ferry to Partridge Bridge, the water is in general good; but here it is shallow and much incumbered with ayts and fishing bucks. There is a back stream which carries away a considerable quantity of water into the river Loddon, much to the injury of the navigation above Cotterel's Lock.

This stream should be shut up with a low wier; the ground on the Oxford side of the river should be rounded off, sloped, and footed up with chalk,

The channel on the Berks side of the ayt should be contracted, and a part of the lower end ballasted away to ease the turn in the barge channel. Something of the same kind should be done at Hall's Mead ayt, and Lynche's ayt below, and if the shoals were ballasted out, and willows planted at the head of these ayts, so as to contract the Berks channel, there would be no impediment here.

From Lynche's ayt to Cottrell's lock there is a sufficient depth of water; but there I found the old stanch in very bad repair, and if something is not speedily done, it is probable it may be carried away by the floods.

At Cotterel's Lock the water was five inches under the gauge mark; but there had been a flash let down from Sunning during the time these observations were making, which will create a small difference in the soundings, but not sufficient to cause any material difference.

The water was five feet nine inches deep on the upper fill of the lock, and this depth seems necessary for the mills, of which one is a paper and the other a corn mill; and I am informed they often work down the head two feet under the gauge mark.

While I was taking my measurements at the lock, a Newbury barge brought down a second flash with her, which raised the water on the lower fill of the lock from three feet nine inches to four feet eleven, and from being under, to two inches above the gauge mark at Marthes lock: with this flash the soundings were taken downwards. The tail cut from Cotterel's Mills coming into the navigation some distance below the lock, on the towing path side, renders the towing very inconvenient. A
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towing path bridge should be made across the mill head, and another across the tail, by which means the barges would be hauled by the horses into and out of the lock, whereas at present they are pushed by poles. There are many shoals between the ayt near Bowney Flats and Cotterel's Lock, which, if ballasted away, would lessen the water on the lower sill of the lock, and thereby prevent the barges from getting into it. To remedy this, the lower sill should be sunk eighteen inches, and the shoals ballasted, and in order to keep them to their depth, the channel should be contracted on the Berks side, which in these districts might easily be done by planting willows on the ays, to collect silt from the floods.

The bank opposite Wargrave should be sloped for about 130 yards in length; and if part of it was cut away, the bend would be so much eased.

At Wargrave Horse-ferry the Oxford bank should also be sloped, and there is a considerable part of the towing path in bad repair.

The channels between the ays and the Berks shore should all be shut up, which would swell the water towards Cotterel's Lock, and tend to keep the barge channel open: and several small shoals should be ballasted.

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From Bowney Flatts to Marsh Lock, the water is good; and I found it five feet two inches deep on the upper sill of the lock, and five feet on the lower sill, the water in the pond below being five inches under pen. There are two corn mills on the Berks side, and a corn and paper mill on the Oxford side. In the middle is an old flash lock, or stanch, the property of Marshall Conway, in very bad repair. There are also two sets of fishing bucks, one the Marshall's, and the other Mr. Stevens's, with so many mills and fishing bucks uncontrouled, as they seem to be, one cannot wonder, that the water in the pond above should often be worked very low. This I found literally to be the case, for when I arrived at the lock, night prevented my further observations; next morning I found the mills had lowered the pond fifteen inches, which stopped the navigation till a new head was penned. The lower sill of Marsh Lock should be sunk about six inches. The space between the ayts, at Mr. Stevens's, and the Berks side of the lock, should be shut up by a weir, and the space between town ayt, and another small one under the mill, should be contracted. These works being done, and the barge channel being ballasted from near the tail of the lock to the bottom of town ayt, will remedy this part of the channel; from thence to Hamble-

ton Lock there is an ample depth of water, except a small shoal of about forty yards in length, opposite Shannon's Wharf, at Henley. At Hambleton Lock I found five feet depth of water on the upper fill, and four feet seven inches on the lower fill, the water being three inches above pen in the pond below. There is a flash lock (the property of Sir Robert Clayton) and a gauge weir. The water from the gauge weirs, used very much to annoy the tail channel of the lock in time of floods; but a piece of camshot has been erected to defend it, and it has had a very good effect; but being now somewhat out of repair, I think unless mended, the navigation will experience great inconvenience from the floods. There is a fall of one foot six inches from the tail of this lock to the head of Hurley Lock, a considerable part of which is in the first half mile from the lock. If the lower fill of the lock was to be sunk eighteen inches, and the channel ballasted out for about twelve or fourteen inches deep, taking it between the small ayt opposite the tail of the Mile-End mill, and the Berks shore, I have no doubt a sufficient depth of water would always be preserved; but the water which comes both from the Tumbling Bay and the mill tail, should be prevented from coming into the channel, at right angles to its course; between Hambleton Ferry and Magpye ayt, there

there are two shoals about thirty yards long each, which should be deepened about six inches. From thence to Hurley Lock there is a sufficient depth of water; but at Frog Mill ayt, there is a very inconvenient towing path on the Berks side. If part of the Berks shore was cut away a little under Medenham Ferry, and the channel between Frog Mill ayt and the Berks shore, was opened, this part of the navigation would be greatly improved, and the hauling much eased.

The water was six inches above the lowest part of the weir at Temple Mills. The depth on the upper fill of Hurley Lock was five feet eight inches, and on the lower fill five feet two inches. I found a very good waste, or guage weir, adjoining the staunch, which is the first good one I have seen on the river. The gates of Hurley Lock are in very bad repair, and so is the brickwork; whenever this lock is repaired, it will be well to sink the lower fill somewhat deeper; but it is not much to complain of as it now is.

The tail cut for about 200 yards should be deepened three inches, the water is then good to Temple Lock. Here again is an excellent weir and sluice, by which the height of the water can easily be regulated. There were five feet three inches in the upper fill, and four feet eleven

inches on the lower fill; the water in the pond below being six inches under pen. The entrance and exit from the tail of Temple Lock is much exposed to the floods, which pass over the mill weir, and the bank opposite has been greatly cut away by the floods.

I would advise this bank to be sloped, and a quantity of flint stones, or pieces of-chalk, thrown down at the foot of the slope, which would greatly assist in defending the bank. We have then good water to Marlow Lock, except about sixty yards at the Copper Works, which should be deepened. Between the wharf and the mills below, there is no towing path for about 220 yards in length; this is a great inconvenience, and ought to be remedied.

When we begun our work this morning, the mills had worked the head down one foot, or eighteen inches under high water mark; and I was informed by Mr. Clarke, your Surveyor, and by the Lock Keeper, that the water is sometimes two feet lower than now.

There are three paper mill wheels, and two corn mill wheels at this place, and they seem to be under very bad regulations indeed, otherwise they would not be suffered to work down the water

so much as three feet six inches under pen; in such cases one cannot be surpris'd at there being a deficiency of water for the navigation; this abuse of power is much against the interest of the mills as well as the navigation, and ought to meet the earliest attention of the Commissioners. I found four feet two inches of water on the upper fill of the lock, and two feet seven inches and a half on the lower fill; there being at the same time only a depth of four feet seven inches and a half on the upper fill of Boulter's Lock, viz. eighteen inches and a half under pen. From the tail of Marlow Lock, to near Marlow Point, there is one continued shoal, where I found, on an average, about a foot more water than on the tail of the lock; and there is, at about 230 yards under the lock, a kind of pen sluice, which is shut in to carry the barges into the tail of the lock, but in this operation much time is lost, as the water has another channel by which it can escape between the lock and pen sluice. If this channel was shut up, and the lower fill of the lock lowered about two feet, the millers would soon find it their interest to lower the mills also; and the scour being properly taken away, and the shoals deepened quite to Marlow Point, it is probable this obstruction would be entirely removed.

But the expence attending these remedies would be considerable, and perhaps not so effectual as could be wished. I would therefore advise a new cut to be made from a little above Marlow Bridge, across the meadows, to the bend below on the Berks side, and past all the shoal water between it and Marlow Point, and a pond lock being placed adjoining the river, a most effectual improvement would be obtained free of all uncertainties, and more in the line of the river below than the present channel, which has been wearing away the point for many years past. Mr. Clarke informed me, it had taken away above forty feet in the last two years,

From Marlow Point we have a good reach for a mile downwards, to nearly opposite Miss Winford's cottage; but here is a shoal near half a mile in length, in which is only three feet ten inches of water; this should be deepened, and there should be willows planted on the ayts to accumulate the silt, and narrow the channel.

From thence to the mouth of the Wycomb stream is good water, but there is a shoal about 100 yards in length, in which there are only four feet three inches. It should be deepened about six inches, for little more than the breadth of a barge;

barge ; and as the bottom is a hard gravel, there will be little danger of its filling up.

Mr. Rose, of Spade Oak Wharf, has a right of towage for horses along a field near his house, which ought to be purchased ; and a ferry should be established for the horses that come from Boulter's Lock, so that they might continue throughout to Marlow.

Just above the Wycomb stream there is an ayt, on the Berks side, which keeps the horses at a great distance from the barges. A towing path should be made through it.

From the Wycomb stream to Cookham Ferry, there is a sufficient depth of water. But here commences one of the most difficult and dangerous places on the Thames. The fall is not only considerable, but the stream is so divided between the barge channel, the paper mill, and the fishing bucks and pleasure grounds of Sir George Yonge, Mr. Martindal, and others, that I see no way of improving the channel itself, without manifest injury to their property. The inconvenient turn at Hedfor Wharf; the danger arising from large chalk stones that tumble from the cliffs above, and lodge in the bottom of the river; the inconvenience of a double ferry, and the difficulties

hitherto experienced in this district, have induced me to recommend, that a new cut, with a pound lock, may be made from a little above Cookham Ferry, by Messrs. Darby and Allnut's Brewhouse, to join the river again at the tail of the paper mill stream, adjoining Sir George Yonge's. By this cut all the difficulties of Heddesford Bucks will be avoided, and the towing path may be continued on the same side of the river from Boulter's Lock, to near Spade Oak Wharf.

The rise of this lock will be two feet three inches, as the river now stands; but as the shoal at Clifden ayt should be removed, the rise will be considerably increased.

It does not appear to me that there will be any great necessity for making a dam at Cookham Ferry, as the shoal will be sufficient to answer the purpose, and therefore the land owners will have no occasion to complain of any injury to their lands, as the river will remain exactly in the same state as it now is. But it would be well for the Commissioners to encourage any contractions, such as may be done by the planting of willows, or the like, under the departure of the side cut from the river, as thereby the depth of water would be generally improved upwards to Marlow Lock.

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From the tail of Cookham Paper-mill, to Boulter's Lock, there is in general good water, except at Clifden ayt above-mentioned, which is proposed to be deepened, and the channel next the fishing bucks should be contracted. A little below this ait is a willow bed, which comes between the barge and the towing path. The towing path should be made across the ait, and there should be a horse bridge at its entrance, to enable the horses to get to it.

The fall between the tail of Marlow Lock and the head of Boulter's Lock, when the water is at a full pen, is now six feet seven inches, and which will be reduced in the reaches as follows:--namely, by the new pound lock at Marlow, seventeen inches will be saved; by the pound lock at Hedfor, two feet three inches, making together three feet eight inches; which, deducted from the former, leaves still two feet eleven inches for a fall between Marlow and Boulter's Lock, of which ten inches lie between the tail of the proposed lock, and that of Boulter's. If the shallows in this short reach are sufficiently deepened, and the pen at Boulter's kept full, there will be little stoppage here; and should the Commissioners chuse to establish a dam above Cookham, with proper sluices to let the water off in flood times, it might pen quite up to Marlow Lock; and the navigation
between

between Boulter's and Marlow would be as good as any other part in this district of the Thames. But should no such weir or dam be established, and the lower fill of Marlow new lock laid sufficiently low, I am inclined to think few obstructions will be experienced here.

There are many things which ought to be done besides what I have mentioned above, such as sloping and repairing the banks, planting willows in some places, and cutting them down in others, so as to straighten the channel in such places as may require it. In others the towing paths may be much improved. If these and other such matters were duly attended to, the navigation, in time, would be greatly improved, and at a moderate expence; and should the plan of purchasing all the old locks and private rights be adopted, and proper lock-keepers appointed to each lock, I have no doubt they would so attend to these matters, as to make the improvements on the river far exceed the value of their wages. I therefore sincerely recommend this to the consideration of the Commissioners.

Since writing the above, I have had some conversation with Mr. Treacher respecting lowering the lower fills of the pound locks, recommended above, and he has given it as his opinion, that it would

would be much less expensive to establish a pair of small gates at a proper distance from each lock, to pen the water into the chamber of the other, than to lower the fills. I have got so much good information from Mr. Treacher, in most things I have had occasion to converse with him about, that I am very much inclined to recommend his plan to have a fair trial.

Having delivered my opinion respecting the best mode of improving the navigation above Boulter's Lock, I shall introduce what I have to say here by some observations on rivers in general.

When rivers run through a country, the soil of which is clay, loam, or any thing of a light and homogeneous quality, they are always deep and generally narrow. But where they run through a soil that is not homogeneous, and which contains in its composition, sand, gravel, or other hard matter, they generally become wide and shallow in different places, agreeably to the proportion of such hard matter, unless bounded by rocks or defended by works of art—for as the light soil is carried away by the floods, or laid on the gaining sides of the river, the heavier are deposited in the bottom and so form shoals, and unless assisted by works of art, the effect of widening becomes a cause of its continuance or increase, for a given quantity of
water

water must have a given section to run through; and if it is diminished in depth it must be increased in width accordingly. In this manner are shallows in a river accounted for.

If the country through which a river passed, was of a homogenous quality, the river would have a gradual declivity; but when otherwise, shoals are formed, and the course of a river becomes irregular, the hard places resisting the effect of the stream, and forming so many natural dams over which the fall of water is in many cases very considerable, whereas the water in the space between runs deep and languid.

The river Thames partakes in a great degree of this last supposition, as will appear in the course of the following report, and it is on this theory the remedies I shall take the liberty to propose are founded.

The situations of the shoals are various, and as such so must be their treatment. There is no doubt that by works of art, I mean simply by contraction, the surface of the river Thames might be made of a regular declivity; but to follow such a plan would be attended with a very serious expence indeed.

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The best mode of improving the navigation of a river where local circumstances are favourable, is to apply side cuts and dams, but in the Thames there is a particular law prohibiting dams, below Boulter's Lock—and indeed the ground adjoining the river is generally too low and flat for their application.—I propose therefore to recommend the improvement by means of contraction, where it can be made with conveniency, and where that cannot with convenience be applied by reason of the very great declivity, to use side cuts and pound locks, making use of the shoals as natural dams for the purpose of penning or turning the water into the cuts.—By this plan the trade will have the option of passing along the old river, or through the new cuts as the water may suit,

Beginning then at Boulter's Lock, I found the pen nineteen inches and a half under the gauge-mark; there were then four feet $6\frac{1}{2}$ inches on the upper fill, and three feet and half an inch on the lower fill, and there were about two inches less in the tail-cut, or channel below, than in the lock.—The lower fill of the lock should be sunk about eighteen inches, the shoals from thence to Lovegrove's Fishing Bucks, should be ballasted out, and there should be a piece of pile planking established between Taplow mill-tail and the entrance to the lock,] to prevent the mill-scour coming

coming directly into the lock tail. The channel which carries off part of the water between the Buckingham shore and the ayt should be shut up, as well as that on the Berks shore, whereby all the water will be turned down the barge channel, and will assist in preventing the shoals from accumulating again. The towing-path may be continued on the Buckingham side quite to Boulter's Lock, by making towing-path bridges for the horses into the ays.

I recommend also the channel, on the Berks side, being shut up to prevent, in small floods, the water from coming down that way; both the ays on the Bucks and Berks sides might be extended by willow hedges, so as to contract the river, and thereby preserve the deep water into Bray-reach, which extends from this point to the mouth of the Holiport river, in all of which is good water. From thence to Bray-wharf the water is very shallow, there not being more than three feet three inches on several places, and there is a very awkward turn in the river opposite the wharf, which greatly impedes the navigation; this turn should be ballasted away, and the channel made on the Buckingham side; and there should be two or three pile plank jetties erected on the Bray side, to keep the water in its channel, some willows might also be planted at the
lower

lower end of the ayt, to direct the stream into the new channel.

Bray mill should be purchased, it is of little value, and the water which is now used for the mill, being turned into the channel, will assist in deepening and keeping down the shoals. From thence to Amerton's lower farm there are only two shoals of little extent to be deepened; but there should be a channel ballasted out between the ayt and the Buckingham side. This channel was begun by the late Mr. Nickalls, but never finished. A jettie should be extended from the island towards the Buckingham shore, to direct the course of the water more into the channel—its lower end should be lengthened for about fifty yards by a willow hedge. There is then a tolerable good water to the head of Monkey island, but this is greatly owing to the channel on the Berks side being grown up by weeds, which only remain during the summer. There should be a willow hedge extended from the upper end of the island inclining to the Berks shore, for at least forty yards in length. This would direct the stream into the barge channel, and the shoal between the island and the main land should be deepened, and the banks on the Buckingham side sloped and footed with chalk; near the bottom of the island is a very sharp turn, which should be pared off.—

A little under Monkey island is a shoal about ninety yards in length, which should be deepened about eight inches. From thence to Queen's ayt there is a regular depth of water; there are however about 180 yards of the Bucks bank, which should be sloped and footed with chalk. A willow hedge should be planted at the head of Queen's ayt for about 100 yards in length, and there should be a set of sluices erected at the Fishing Bucks, which might be shut down when the bucks are not in use, to confine the water to the barge channel. From this place to Shooter's Fishing Bucks, the bottom of the river is of an undulating figure, with several shoal places, which should be ballasted away, and some contractions made to assist in keeping them down.

At Shooter's Bucks the fall in the river is very considerable, the velocity of the water is great, and of consequence shallow, the depth of water was about three feet, and there were several barges a-ground waiting for a flash of water from above. There is a pile in the middle of the river, and a willow hedge extends from thence down to the bucks, which are on the Buckingham side, and there is an ayt on the Berks side, with a stream behind it, which serves to carry away part of the water, and consequently lessens its depth. It appears to me that this stream should be shut up as well
as

as that where the fishing bucks are, and the river should be contracted as much as it conveniently can, and notwithstanding the water is tolerably deep from this place to opposite Boveney church, except at the entrance of the Clewer mill-stream; yet the turning is so inconvenient, and the head of the Clewer mill-stream so dangerous, that I am much inclined to advise a cut being made from above the bucks across the point to Boveney church; in this cut there would be a fall of nearly two feet, and the lower fill of the lock being laid deep enough, and the channel towards Gill's fishing bucks scoured out and contracted, a very good navigation would be obtained from thence to the head of the South Hope.

The great deprivation of water the river suffers by the Clewer mill, is a serious injury to the navigation. It is a pity in a river on which so much trade is carried, mills should be suffered to exist, to the detriment of the navigation.

At the South Hope there are several serious obstacles; and they are of such a nature as render it difficult to give an opinion respecting the best mode of improvement.

From thence to the lower end of the Clewer mill-stream there are several shallows, where I

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found,

found, even with a small flash which had just been let down, only three feet nine inches of water. These shallows might easily be removed; and it is probable, by a judicious contraction, they might be kept under; but the turnings are so acute, that the navigation is thereby rendered extremely difficult and dangerous. From the lower end of the Clewer mill-stream to Windsor-bridge there are several shallows, but not quite of so bad a kind as those above. There should be a channel made on the Buckingham side of Piper's ayt, to bring the barges in a line with the horses, and the opposite channel should be contracted by a weir of plank piling. There should be a kind of sheeting extended from a little below the Clewer mill-stream to the head of a small island, to direct the water to the Buckingham side, which, with the works before mentioned, would tend greatly to improve this part of the navigation.

From Windsor-bridge to near the head of Black-pots Island, there is one continued shallow, and the water is very rapid, moving nearly at the rate of three miles per hour. The water which turns the water-works for the supply of Windsor Castle, and also for the town itself, is taken out of the river at this place. I measured the quantity, and found it was no less than one fourth of the water in the river after a flash had been nearly spent.

Such

Such a deprivation as this can scarcely fail to produce shallows, particularly where the fall is so great. Could it be practicable to take away the castle, and town's water-works, and turn all the water into the navigable channel, this alone would greatly improve the navigation. In place of these machines, a small steam-engine might be established, which would compleatly supply their places without affecting the navigation; but as I suppose this cannot be brought about, the only remedy I can advise, without a side-cut, is to contract the stream at the head of the Black-pots Island, by shutting up the channel on the Buckingham side, and joining the upper and under islands together. This would swell the stream upwards, and thereby deepen the water: but whatever is done, the section of the King's engine-stream, and the Windsor water-works, should be carefully ascertained, in order that no more water than they now possess should be given to them from the river by such works as may be devised for the improvement of the navigation; and there should be a towing-path bridge erected across at the Cobler Point, and a scaffold or wharf towing-path continued from thence under Windsor-bridge to the wharf above: this would tend greatly to the convenience of passing under Windsor-bridge; but I hope some day or other it will be thought adviseable to rebuild this structure on a better

and more enlarged plan, as many others on the Thames have lately been, such as Kew, Richmond, Walton, &c. and as Staines is now doing.

While I am about this part of the subject, I must mention three propositions which have been laid before me, namely, one to make the King's engine-stream navigable, and to place a pound lock abreast of the engine, and then passing through Windsor-bridge, to enter the Clewer mill-stream, and, by a lock at the mill, ascend into the mill-head, and so pass to Surly Hall.

Another is to go along the King's engine-stream as before ; but, instead of passing along the Clewer mill-stream, to make a cut across Ward's Meadow, to the head of the South Hope, making a dam at that place, and a pound lock in Ward's Meadow.

The third has been proposed by Mr. Mylne, and is to make a cut from the bottom of Eton Wharf to the head of the South Hope, with a pound lock near its junction with the river below. Very little examination is requisite to decide which of these plans is best. The Eton Cut, in point of improvement, to the navigation, claims decided preference : this, however, I understand, is not likely to be adopted, nor is the Clewer mill-stream scheme ;

scheme; recourse must therefore be had to the next best, namely, the Cuckoo-meadow Cut and the King's engine-stream; and, in doing these, care should be taken, by contraction, to form as much of a pen, both at the South Hope and Wind-for-bridge, as the local situation of the place will admit.

The tail cut of the King's engine-stream should be extended considerably lower, by cutting away part of the bend at Plangleys. The channel on the Berks side of the Black-pots lower island should be contracted by camshot, and the towing-path brought nearer to the barges; and a shoal, about 450 yards in length, being ballasted away, a good water will be obtained to Datchet-bridge, a little under which is a shoal about eighty yards in length, which should be removed, from whence we have a good water to New Lock Shoal. There has been a valuable work done here about three years ago, namely, shutting up the channel between an ayt and the Buckingham side, and confining the water to the Berks side, which it has done effectually, and greatly improved the channel. If the two islands were joined together, a further improvement would follow, and I advise this to be done. The towing-path in this district is very bad, and there are several culverts for ditches, &c. wanting.

From New Locks to Mr. Isherwood's fishing bucks, the bottom is of a very undulating figure, in some places there being only three feet four inches of water; if, however, some ballasting was performed, the channel of the river a little contracted, the passage between the island at Welly bucks house and the shore shut up, and the mouth of Mr. Isherwood's fishing bucks contracted, this part of the navigation would be greatly improved. From Mr. Isherwood's, along Windfor Gulls, the channel is wide, and the banks much gulled or cut away by the floods. It should be defended on the Berks side by a strong wharf of camshot, and greatly contracted. The Buckingham side should be sloped, and footed with stones, and a towing-path raised by the Bells of Ouzely to prevent the horses from tracting in the water. Both these places might be avoided, by making two cuts, one from near the bottom of New Lock Shoal, across the bend, to above Mr. Isherwood's fishery. This cut would be about half a mile long, and there would be a fall of about three feet. By the river, the distance is one mile six furlongs.

Another cut might be made from nearly opposite the tail of the former, to a bend a little under the Bells of Ouzely, and above Magna Charta Island. This lock would have a fall of about two feet, and would carry the barges past Old Windfor Gulls,

Gulls. If the channel was scoured out from thence to Magna Charta Island, and the channel on the Buckingham side shut up, and a new channel opened between a small island below, and the Surrey shore, the space between the two islands being contracted, the water would be mostly confined to one channel, and a sufficient depth would be obtained to near Millson's Point; from whence, to Staines-bridge, I found a very good water, except in two or three places, making about 420 yards in length, which should be ballasted away, and the channel of the river contracted, to keep it from gathering. If the channel on the Staines side of Church ayt was shut up, the water would be swelled upwards for a considerable distance. The turn, however, at Millson's Point is very acute, and the channel of the river rapid. If it should be thought worth while to avoid this place, a cut with a pound lock might be made from near Anchorwick to a little under the entrance of the water from Hith Mill. This cut would be near a mile in length, and have a fall of somewhat more than two feet. I do not, however, think the improvement the navigation would derive from this, worth the expence,

The rebuilding of Staines-bridge is of very great importance to the navigation; but there ought to be a towing-path made from thence to the lower

side of Staines, a distance of 390 yards; from which, to Rushbed-hill, a little above Fisherhouse Point, there is good water. Here the barges are sometimes stopped; but this is but seldom. If, however, two jetties were erected on the Surrey side, a little above the point, the deficiency would be remedied. From thence, to the beginning of Penton Hook, there is good water; at this place something should be done. The river has been making great advances on both sides of the hook, and if not guarded by camshot, and the ground taken away on the Surrey side, it will soon cut the hook away. The distance round the point is about 950 yards; across it 132; the fall is thirteen inches in this short distance. You may judge what will be the consequence if the water went directly across. At the extremity of Penton Hook, a part of the water is conveyed away to supply Oxley mill, and unfortunately in a situation where it can ill spare it.

The quantity which the stream lost on the 17th of June last, by this mill, was about one twelfth part of the whole; a loss which in my opinion is far greater to the navigation than the value of the mill. The entrance to this stream is also a great inconvenience, as barges are in danger of running against the point in passing,

There

There is an accumulation of gravel on the lower side of the Hook, and the river is incroaching on the Surrey shore. This should be permitted, and even encouraged by cutting down the trees which oppose it, and which at present overhang the river, and endanger the safety of the craft.

The back of the Hook should be guarded by camshot for about 200 yards in length, and a channel should be ballasted on the Surrey shore for the barges. The camshot from the Hook incroaching as much or more than the other increases the section,

From this place, to the Head of Laylham Gulls, there is in general good water, except some small places which ought to be ballasted out. But from thence to Doomsday Bushes the water is in general bad, and there is little probability of doing much good by contraction, without a very great increase in the velocity of the water, which is here considerably above three miles per hour; and which, if increased by contraction, would be very inconvenient and dangerous. Mr. Trufs, who on all occasions seems to have exerted himself for the good of the navigation, has here erected two jetties; these for sometime withstood the effects of the floods, during which they considerably improved

proved the navigation, but one of them was entirely blown up, and the other in part, so that it is now of little use.

This leaves one little room to hope for any great improvement by contracting or deepening here: taking all matters therefore into consideration, I am of opinion it will be best to make a new cut, from the head of Laylham Gulls to Doomsday Bushes, a distance of nearly a mile and a half, and a fall of five feet six inches. At the head of this cut there should be two jetties to act partly as a dam to the cut, and to swell the water towards Penton Hook, unless it should be judged proper to cut across the Hook and place a lock thereon, to pen about eighteen inches. This cut would not only shorten the distance, but will improve the water above by contracting the river at its entrance.

Should not the cut by Laylham be adopted, I can only recommend contracting the stream by strong jetties, with sheeting at each, and ballasting away the shoals, to assist the water in scouring out a channel.

From Doomsday Bushes to a small ayt below, there is good water, but the stream is divided by the ayt, which makes the water shoal in the navigable

gable channel. The channel next the Surrey side should be stopped up by a low gauge weir, which by turning the additional water into the main channel, will assist greatly in deepening it; the bank for about two hundred and seventy yards should be sloped and footed with stones to prevent its being cut away.

A little above Dog's ayt the river has encroached considerably on the Middlesex side, and formed a bank on the opposite side. The Middlesex side should be defended by a piece of cam-shot, three hundred yards in length, and the shoal on the opposite side should be taken away to the depth only of low water mark, to make room for the floods; and the old river, or back water, on the Surrey side, should be planted with willows to catch the silt, and thereby to make it grow up; or jetties might be erected on the Surrey shore for that purpose.

The channel a little lower on the Surrey side is wearing slowly away, and some trees that hang over from Lord Portmore's pleasure grounds, which greatly annoy the barges, should be taken down. It is somewhat strange the Middlesex channel should here have been made the navigable one; it appears on examination that the other is the more direct line, and I should have imagined the natural one. Had the Middlesex chan-
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nel been shut up with a low weir, and the towing path made across the ayts, I have no doubt, the other channel would have been preserved and in better condition than this; but if the Middlesex channel is to be preferred, the bank must be sloped off and footed with stones to keep it from cutting away; and the other channel should be contracted, and part of the lower end of the ayt pared off to preserve the water from incroaching further on the land. From the end of Dog ayt, round Stoner's Gut, to the mouth of the River Wey, there is tolerably good water; but the banks are in bad repair, and wearing fast away; they should be sloped and footed with stones, or done with the low camshot, otherwise it is likely the river may soon make a course through the neck.

Near the mouth of the River Wey the water is very shoal, and the current rapid; there might be some contractions made near the mouth of the Wey, and the channel might be deepened. It appears to me however, a pound lock might be erected on the cut, at the bottom of the old channel, to pen the water sixteen inches high, the fill being sunk low enough to admit of the shoals being deepened below, by this means the crooked channel would be avoided. The distance round the gut is one thousand one hundred yards; across it only two hundred and ninety; a saving therefore would be

be made of nearly half a mile in this short distance; nor would the Wey navigation be injured, as its entrance would remain the same as it now is.

At Folly ayt the towing path is inconvenient, the ayt lying between the barge and the horses; the channel next the Surrey side should be shut up, and the towing path made across the ayt.

From Folly ayt, along Shepperton Hope to Lower Hawford, the water is very good, except a short distance at Shepperton Ferry, which should be deepened and contracted; the towing path bank should be sloped and footed with stones.

A very good opportunity offers of making a cut to avoid Stoner's Gut, in case such should be thought advisable, by beginning a little above Dog's ayt, and cutting across the flat grounds to Shepperton, a distance somewhat less than three quarter's of a mile, and a fall of three feet eight inches; whereas by the river the distance is about two miles, a saving therefore of one mile and a quarter.

From Shepperton Hope to Lower Hawford there is a good reach of water; but there are about one hundred and fifty yards of a shoal, on which I found only three feet six inches to four feet of water; the bank is wearing fast away, and the
channel

channel very crooked. If the Surrey channel of the small ayt was shut up, the additional water, which would be turned into the barge channel, would tend much to keep the river deeper; from thence to Cowie's Stakes, is deep water, but here is a sudden turn, which makes the camshot very expensive to keep in repair; from Cowie's Stakes to Walton Bridge are several shallows, on some of which there is only three feet four inches of water, and it continues with little variation to the bottom of Scotland ayt; the first part is very wide, and might be cured by a judicious contraction; the second part has already been done by shutting up one of the channels at the head of Scotland ayt, which makes a pen of twenty inches. If more is done in this way the depth would no doubt be increased, but the velocity of the stream would also be increased, and it is already too great.

There were three jetties erected some years ago at Sunbury, to change the barge channel to the Surrey side.—The ballast machines having cleared away the gravel before they were put down—these have fully answered their purpose so far as they went, but there are still several places below, where there are only from three feet six inches to four feet of water; and I was told by the Ferryman at Sunbury, that he has often known the water much lower than at this time; if so, I ap-

prehend it will be better to make a cut along the flat grounds, from near Lower Hawford, to behind Scotland ayt, with a pound lock; this cut would be one mile one furlong in length, and have a pen of three feet eight inches; it would save near three quarters of a mile in length, and avoid a very bad piece of navigation. From Sunbury Ferry to near the church, there is a good depth of water; but from a little below the church to near the head of Cane Edge, there is a very bad shoal called Sunbury Flats.

It was on the 18th of June, when I was here, a barge of Mr. Ashby, of Staines, loaded with fifty chaldron of coals, had got a-ground, there being then only two feet ten inches of water on the shoal; Mr. Truſs informed me, this shoal is worse now than it has been for some time past, owing to an old stake hedge which was on the towing path side of the river being taken up, or rather trodden down by the horses, and which served to contract the river.

This hedge should be restored, or rather done with a strong camshot, so as to become permanent. The channel between the two ayts and the Middlesex shore, should be contracted by low plank pile-weirs to turn more of the water down the barge channel, and swell it for some distance upwards;

upwards; and such shoals as lay in the way should be ballasted out. There is from this place to Peggy's ayt, good water, but here the channel on the Surrey shore should be shut up, and the Middlesex one deepened.

From Peggy's ayt to near Hampton, the water is in general deep, except at the head of Platt's ayt. If there was a low weir put across from the ayt to the Middlesex shore, and the shoal ballasted, there would be a sufficient depth both above and all along the ayt to Hampton.

The shoal at Hampton Ferry should be taken up, and the channel contracted; from thence along Hampton Deep, to near Garrick's Upper ayt, is good water; the two ayts should be joined, and the Middlesex channel stopped by a low weir, and some ballasting done in several places nearly to Hampton Court Bridge.

In case it should be found, on an examination, that it would be easier and more certain to avoid this part of the river, a very favourable opportunity offers, of making one or two side-cuts from above Sunbury Flats to near Hampton Court Bridge.—A single cut, of somewhat less than three miles long, with a lock of six feet-rise, would completely avoid all this bad part of the navigation,

and perhaps would cost less money than the other.

From Hampton Court Bridge to Brown's Fishing Stops, near Kingston, the water is generally good.—There are five places which require to be ballasted, and a little contracted; namely, forty yards below Hampton Court Bridge; two hundred yards between thence and Ditton ayt; two hundred and seventy yards at the head of Ditton ayt; eighty yards opposite the wharf; and forty yards at Raven's ayt.—The channel on the Surrey side of the ayt should be stopped up by a low gauge weir. From Brown's Fishing Stops, to Teddington Ferry, there is, in general, shallow water; and the ground on each side is so built over with houses, that I can scarcely say what should be done: it is too low for a dam, and too much encumbered with houses to admit of a side-cut. The velocity of the stream is nearly three miles and a half per hour, and therefore very improper for contraction, as it would be the means of adding to that, which is too much already.

Under all these circumstances, it appears to me best to ballast the channel nearer to the town of Kingston, so as to bring it into a direct line with the navigable opening of the bridge, and not to fall

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across,

across, as it now does ; whereby several barges have been lost, by being drove against the piles of the bridge by the force of the stream. The trunk which carries the water underneath the river to Hampton Court, should be lowered at least one foot, as the barges receive great injury by striking their bottoms against it ; and the Middlesex channel, at the island opposite the pay-gate, should be shut up, and a towing-path made out of the river, by a piece of camshot, which will have the double advantage of contracting the channel, and saving the exorbitant toll exacted for this short piece of towing-path to Kingston Bridge. These works will swell the water, and enable the barges to get easier over the shoals. There should likewise be a piece of contraction at New Road ; and the Middlesex channel, of the ayt, at Mr. Parkhurst's Fishing Steps, should be nearly, if not wholly shut up ; and if the shoals are once ballasted away, so much additional water as will be turned into the barge channel, will most probably keep them down.

There were three jetties erected at Teddington Ferry, some years since, to contract the channel of the river, the shoals being previously ballasted away ; and the best consequences have followed.— They have now get much into disrepair, which I am surpris'd at. In my opinion, they should be re-
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instated

inflated and extended; otherwise the river may again return to its former state. From thence to Swan Island, there is a tolerable depth of water; except adjoining the island, where is a shoal about two hundred yards in length. If a gauge weir was put across the channel, next the late Mr. Pope's house, the water would be swelled for some distance upwards; and, by the assistance of the ballast-engine, the barge channel might be greatly deepened. We have then good water to Snow Hill, opposite Twickenham ayt. Could the channel next Twickenham be shut up, this might be made one of the best places in this part of the river; but, as that cannot be done, the Twickenham channel should be somewhat contracted, and an inclined jettie, or cut-water, placed at the head of the island, so as to turn most of the water into the barge channel. From Twickenham ferry to the islands called the Routs, the water is rather shallow; but a little contraction at the Fishing Bucks would throw more of the water into the barge channel, which, with some ballasting, would be greatly improved. From thence to Richmond Bridge there is an ample depth of water, except in two or three places, where, with some small pieces of ballasting, a good depth may be made from thence to Isleworth.

I have now stated what has occurred to me as the best method of improving the River Thames, from Isleworth to Reading, taking all circumstances into consideration: had I had time to have examined the whole with more attention, it is probable I should have treated the subject better. I must therefore once more request the Commissioners, and others interested, will make such allowances, in the reading of this report, as to them seems proper.

I have mentioned many ideas which, before execution (if ever that should take place) will require much serious consideration—the general outline only being stated here. Side-cuts without dams have not been generally adopted in the improvement of river navigations; but, if the places are well chosen, I see no reason why they should not be adopted. I am perfectly satisfied, if laid out with due consideration, they might be applied with great advantage to the improvement of the Thames; and, I am of opinion, it is only by such cuts that the navigation can ever be completely improved; for the country will never suffer dams to be made in the lower parts of the River Thames. Whether the places I have mentioned are the best, might soon be determined by a regular survey. But, I am free to confess, that, to render the Thames navigation complete, at least so far

far as Boulter's lock, so as to insure *certainty*, *security*, and *dispatch* of business, would incur a much greater expence than the making of a separate canal; and therefore, unless the advantages derived by those places situated on the banks of the Thames, and which will be left out by a separate canal, surpafs, in value and extent, the disadvantages experienced by Reading, and all the interior country connected with the Thames, I am of opinion, a canal should be adopted:—to what extent I can scarcely advise.

Clear it is, that if the London Canal be adopted, as now proposed, Windsor must be on a side branch, and the thorough trade must go the circuitous line by Marlow and Henley. But, if the canal through Windsor be adopted, Windsor will be on the main line. The thorough trade will have the short-course; and Marlow, Henley, and the country adjacent, may, by a short-cut from near Windsor to Boulter's, be equally well accommodated, in point of navigation, as if the main line passed through those places.

It is true, the River Thames, from Boulter's lock to the Kennet's mouth, is very capable of improvement; and it does not appear, from any examination I have made of the Lock-keeper's books, that the detension by floods, for many years past,
has

has been considerable. But the course is circuitous ; and this, added to the other, will amount to something considerable in the year. It is therefore for the country to determine, whether they will agree to this or not.

From Reading to Boulter's Lock by
the river Thames, is - - - - 23½ miles.

From Boulter's Lock to Rails' Head,
Isleworth - - - - - 37½

Total 61 miles.

From Reading to Boulter's Lock,	} 23½	} 42½
by the river - - - - -		
From Boulter's Lock to Isleworth,	} 19	
by the proposed London Canal		
Distance by the Canal from Reading through Windsor to Isleworth	32	

Saving in favour of the line through
Windsor of - - - - - 10½ miles.

Before I conclude, I must beg leave to observe, that as the surveys made by me are little more than sections of the country, taken in such directions as appeared to me most eligible for canals, what I have said on the subject, cannot be considered as full

full digested plans of such lines as I have pointed out; for instance, I have stated both the lines that pass through Windsor, as departing from the Thames on the same level as the river, and continuing the same to near Twickenham. It is possible, however, it may be found better, on a serious examination of the subject, to continue on a somewhat higher level, supplying them with water from above Windsor, or perhaps from some branch of the river Colne. These observations I judged it proper to submit to your candour, least any misconception might arise respecting those lines I have pointed out. In case a line through Windsor should be adopted, a branch most probably will be made from thence to Boulter's Lock; this branch would afford another means of supplying the canal.

JOHN RENNIE.

Stamford-street, London,

July 30, 1794.

N. B. The Plan that accompanys this Report will shew the lines mentioned, as surveyed by me.



ERRATA.

p. 19. l. last, for *in* read *on*

p. 22. l. 7, for *pond* read *pound*

p. 25. l. 8, for *ayt* read *willow bed*

p. 27. l. 2, after *lock* add *for the present*

p. 36. l. 11 f. b. for *Ward's* read *cuckow*

—— 3 f. b. after *claims* add *the*

p. 50. l. 10 f. b. for *steps* read *stops*

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TRADE

Granted to the

South-Sea-Company :

Considered with Relation to

JAMAICA.

*In a LETTER to one of the DIRECTORS of the
SOUTH-SEA-COMPANY ; By a Gentleman who
has resided several Years in Jamaica.*



L O N D O N :

Printed for Samuel Crouch, against the Royal Exchange
in Cornhill, 1714.